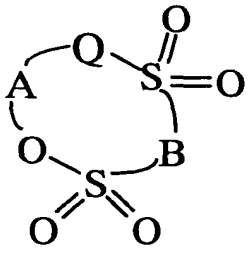
What is claimed is:

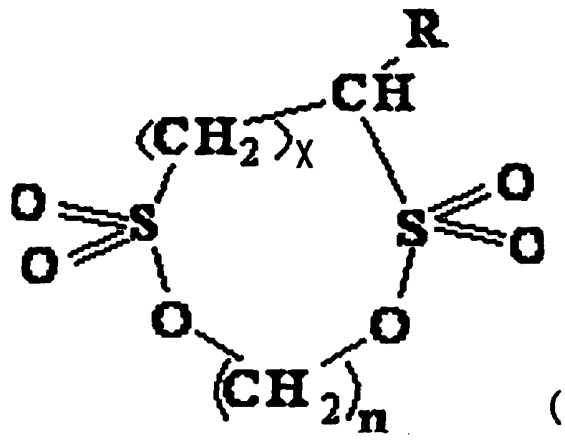
1. An electrolyte solution for a secondary battery, comprising non-proton solvent and cyclic sulfonic ester including at least two sulfonyl groups.

2. The electrolyte solution for a secondary battery according to claim 1, wherein said cyclic sulfonic ester is a compound represented by a general formula (1) described below:



(where: Q is oxygen atom, methylene group or single bond; A is substituted or non-substituted alkylene group containing 1 to 5 carbons, carbonyl group, sulfinyl group, substituted or non-substituted fluoroalkylene group containing 1 to 6 carbons or divalent group containing 2 to 6 carbons being bonded to alkylene unit or fluoroalkylene unit via ether bond; and B is substituted or non-substituted alkylene group, substituted or non-substituted fluoroalkylene group or oxygen atom.)

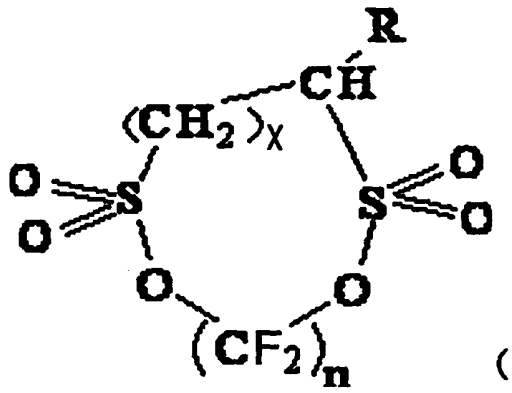
3. The electrolyte solution for the secondary battery according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (2):



(2)

(where: x is 0 or 1; n is an integer from 1 to 5; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

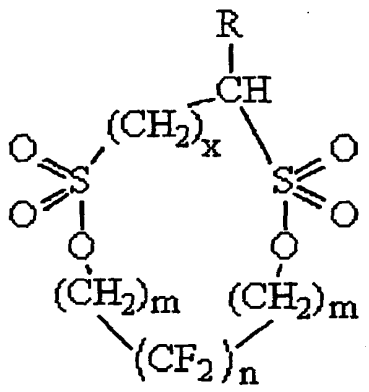
4. The electrolyte solution for the secondary battery according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (3):



(3)

(where: x is 0 or 1; n is an integer from 1 to 5; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

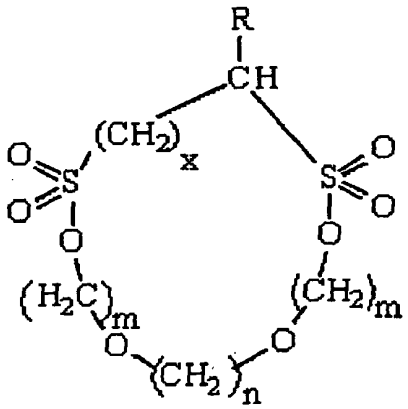
5. The electrolyte solution for the secondary battery according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (4):



(4)

(where: x is 0 or 1; m is 1 or 2; n is an integer from 1 to 4; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

6. The electrolyte solution for the secondary battery according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (5):

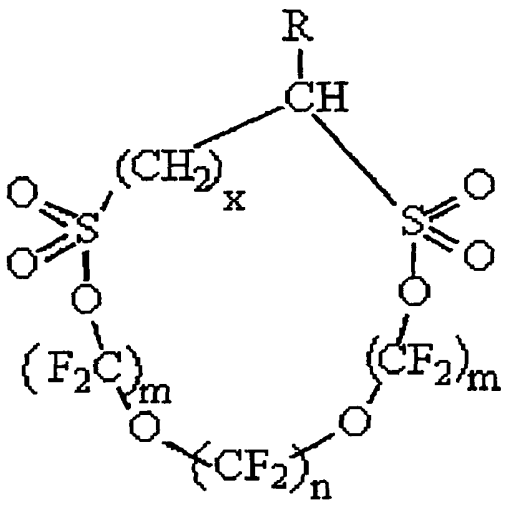


(5)

(where: x is 0 or 1; m is 1 or 2; n is an integer from 1 to 4; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

7. The electrolyte solution for the secondary battery

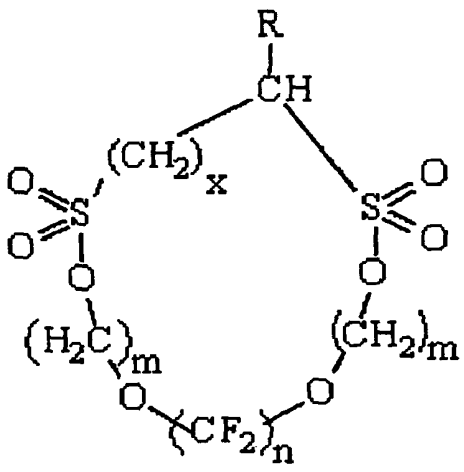
according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (6):



(6)

(where: x is 0 or 1; m is 1 or 2; n is an integer from 1 to 4; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

8. The electrolyte solution for the secondary battery according to claim 2, wherein said compound represented by a general formula (1) is cyclic disulfonic ester represented by the following general formula (7):



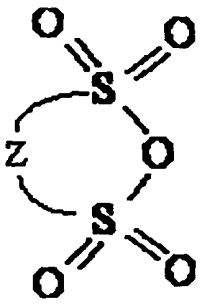
(7)

(where: x is 0 or 1; m is 1 or 2; n is an integer from 1 to 4; and R is hydrogen atom, methyl group, ethyl group or halogen atom);

9. The electrolyte solution for the secondary battery according to claim 1, further comprising a compound having at least one sulfonyl group, in addition to said cyclic sulfonic ester.

10, The electrolyte solution for the secondary battery according to claim 9, wherein said compound having at least one sulfonyl group is included at a weight ratio over said cyclic sulfonic ester of 0.01 to 100.

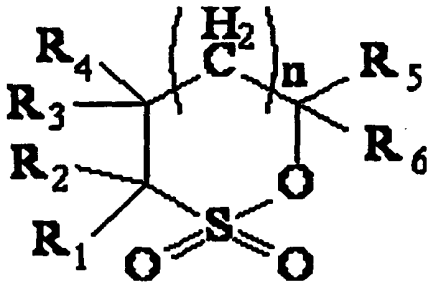
11. The electrolyte solution for the secondary battery according to claim 9, wherein said compound having at least one sulfonyl group is a compound represented by the following general formula (8):



(8)

(where: Z is substituted or non-substituted alkylene group containing 2 to 4 carbons, substituted or non-substituted alkenylene group containing 2 to 4 carbons, substituted or non-substituted aromatic cyclic group or substituted or non-substituted hetero cyclic group.)

12. The electrolyte solution for the secondary battery according to claim 9, wherein said compound having at least one sulfonyl group is a sultone compound represented by the following general formula (9):



(9)

(where: n is an integer from 0 to 2; and R_1 to R_6 is separately selected from the group consisting of hydrogen atom, alky group containing 1 to 12 carbons, cycloalkyl group containing 3 to 6 carbons and aryl group containing 6 to 12

carbons.)

13. The electrolyte solution for the secondary battery according to claim 1, further comprising imide anion and transition metal ion.

14. The electrolyte solution for the secondary battery according to claim 1, further comprising metal complex of imide anion and transition metal ion.

15. The electrolyte solution for the secondary battery according to claim 13, wherein said transition metal ion is lanthanoid transition metal ion.

16. The electrolyte solution for the secondary battery according to claim 15, wherein said lanthanoid transition metal ion is selected from the group consisting of: europium ion; neodymium ion; erbium ion; and holmium ion.

17. The electrolyte solution for the secondary battery according to claim 13, wherein said imide anion is represented by $^{-}N(C_nF_{2n+1}SO_2)(C_mF_{2m+1}SO_2)$ (where each of n and m is independently an integer of 1 to 6.)

18. The electrolyte solution for the secondary battery according to claim 13, wherein said imide anion or metal complex thereof is included in said electrolyte solution at a concentration of 0.005 % wt. to 10 % wt.

19. The electrolyte solution for the secondary battery according to claim 1, wherein said cyclic sulfonic ester is included in said electrolyte solution at a concentration of

0.005 % wt. to 10 % wt.

20. The electrolyte solution for the secondary battery according to claim 1, further comprising vinylene carbonate or derivatives thereof.

21. The electrolyte solution for the secondary battery according to claim 1, wherein said non-proton solvent includes one or more solvent(s) selected from the group consisting of: cyclic carbonates; linear carbonates; aliphatic carboxylic acid esters; γ-lactones; cyclic ethers; linear ethers; and fluoro-derivatives thereof.

22. The electrolyte solution for the secondary battery according to claim 1, further comprising lithium salt(s), which is one or more compound(s) selected from the group consisting of: $LiPF_6$; $LiBF_4$; $LiAsF_6$; $LiSbF_6$; $LiClO_4$; $LiAlCl_4$; and $LiN(C_nF_{2n+1}SO_2)(C_mF_{2m+1}SO_2)$ (where: n and m are integer numbers.)

23. A secondary battery comprising at least a cathode and an anode, said secondary battery including the electrolyte solution according to claim 1.

24. The secondary battery according to claim 23, further comprising a cathode active material of lithium-containing combined oxide.

25. The secondary battery according to claim 23, further comprising an anode active material of one or more material(s) selected from the group consisting of: a material

being capable of intercalating and deintercalating lithium; a metallic lithium; a lithium alloy; and a metal material being capable of forming an alloy with lithium.

26. The secondary battery according to claim 25, wherein said anode active material contains a carbon material.

27. The secondary battery according to claim 26, wherein said carbon material is graphite.

28. The secondary battery according to claim 26, wherein said carbon material is amorphous carbon.

29. The secondary battery according to claim 23, further comprising a film packaging.